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■ *International Summary*

- NRIC reports that most countries categorized as high risk of Y2K network problems are countries with relatively low dependence on telecommunications services.

- According to NRIC, North America, Asia Pacific, and Western Europe are medium to low risk regions.

- North East Asia, Middle East, North Africa, and Eastern Europe are medium to high risk regions.

- Central and South America, the Indian sub-continent, and Sub Sahara Africa are high risk regions.

- The ITU reports that 52 percent of respondents supplying date-specific information to its survey reported their systems anticipated compliance by March 1999.

- Termination of voice and data traffic overseas, which relies on the networks of interconnecting foreign carriers, could be hampered by Y2K problems abroad.

ASSESSMENT OF INTERNATIONAL WIRELINE TELECOMMUNICATIONS CARRIERS

The information we present in this section is the result of analysis conducted and publicly reported by the Network Reliability and Interoperability Council (NRIC) and the International Telecommunication Union (ITU). The ITU, the principle UN intergovernmental organization that coordinates efforts to improve the efficiency and usefulness of telecommunications services, distributed a survey to its entire membership including governments and telecommunications carriers, satellite operators, and mobile providers. While it is one of six sources employed in the NRIC study, we include a separate analysis of the ITU survey as well.

The Commission convened an informational meeting on the Year 2000 Problem and international telecommunications services in June 1998. At that juncture, industry indicated that neither dial tone nor data transmission were likely to experience significant Y2K-related problems.

Some companies reported, however, that billing and maintenance systems were areas of concern. Moreover, the major U.S. international carriers indicated that terminating voice and data traffic overseas, which relies on the networks of interconnecting foreign carriers, could be hampered by Y2K problems abroad.

NRIC SURVEY ASSESSMENT — RESULTS AND ANALYSIS

Methodology

NRIC conducted its own independent assessment of international telecommunications readiness between October 14, 1998 and January 14, 1999. The NRIC assessment, which covered 84 of the 225 countries in the world, examined data collected from six different sources, including the ITU, the Gartner Group consultancy, two major U.S. international telecommunications service providers and two major financial services providers.

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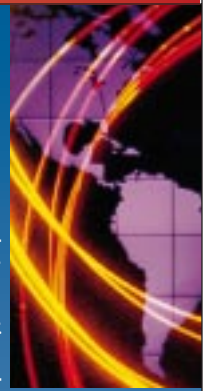
The assessment study used a methodology in which risk was determined by averaging the data presented by each of the available sources. NRIC scored, totaled, and averaged equally the sources of data for each country. It did not weigh sources differently. The full NRIC study can be found on the NRIC website <www.nric.org>.

We would interject one note of caution in interpreting these results. The international situation is troubling primarily because it has been very difficult to get meaningful and detailed information from many countries. Thus, many countries may be doing much better than we perceive and, conversely, some may be doing worse. Nevertheless, we are of the view that at this stage, poor information availability must be classified as presenting a risk.

SUMMARY

NRIC identified the Y2K readiness of each evaluated country according to perceptions of risk. See Figure 1. NRIC noted that the countries that face a high risk of network problems from the Year 2000 Date Conversion Problem tend to be countries with lower teledensity and thus lower dependence on telecommunications services. The perceptions of risk are ranked "high," "medium," or "low."
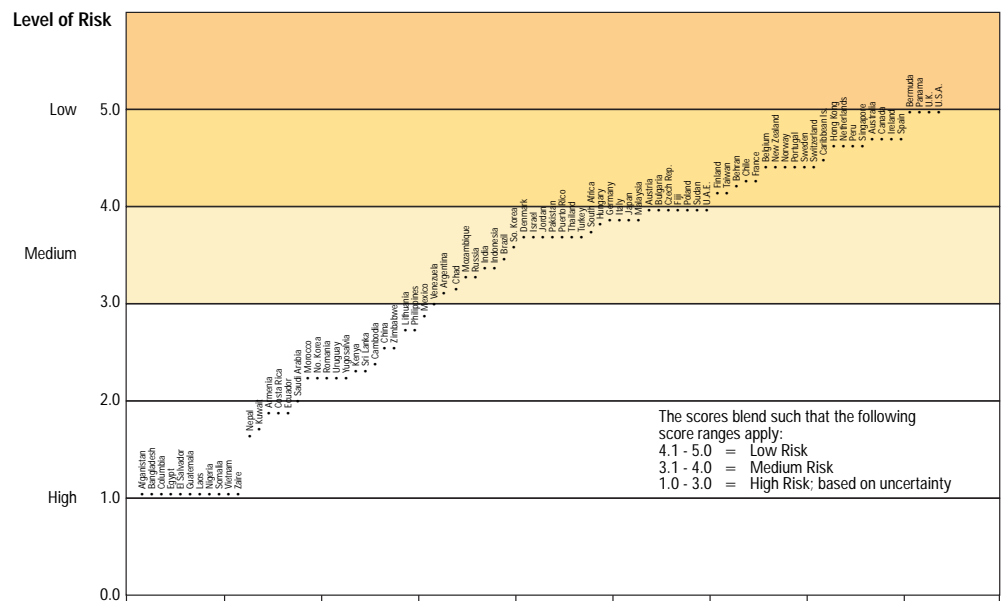

Figure 1. International Status by Country, Perceptions of Risk

Specifically, "high risk" countries predominate in Central and South America, the Indian sub-continent, and sub-Sahara regions (see Figure 2). Of particular concern to NRIC was the fact that 21 percent of telecommunications traffic is originated or terminated between the U.S. and these high risk regions. Approximately, 36 percent of telecommunications traffic is terminated between the U.S. and "medium risk" regions, namely, Northern East Asia, the Middle East, North Africa and Eastern Europe.

Areas classified as "low risk" for Year 2000 problems, by contrast, include North America, Western Europe, and Israel. Approximately 43 percent of telecommunications traffic is terminated between the U.S. and "low risk" countries.
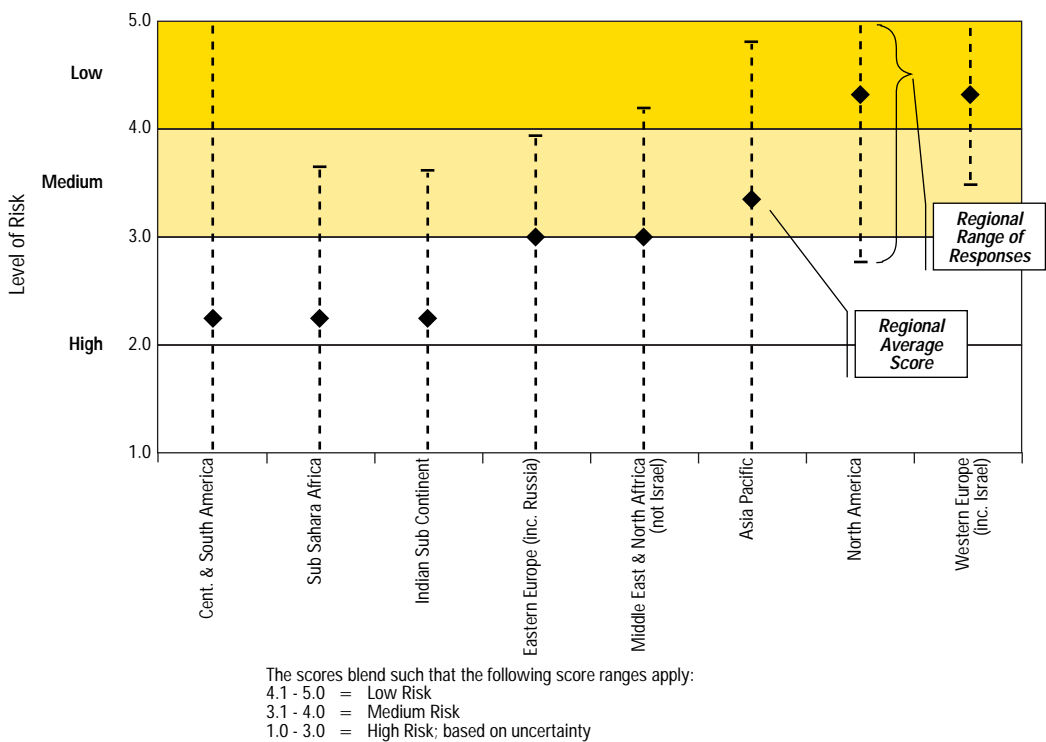
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Figure 2. International Status by Region, Perceptions of Risk

The scores blend such that the following score ranges apply:
4.1 - 5.0 = Low Risk
3.1 - 4.0 = Medium Risk
1.0 - 3.0 = High Risk; based on uncertainty

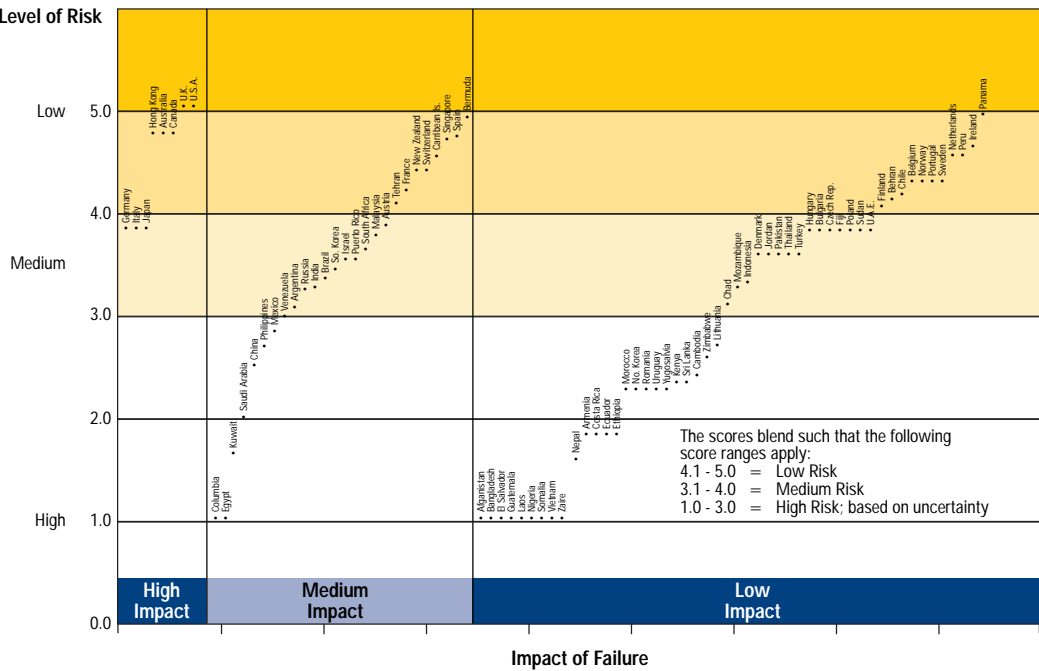**Figure 3. International Status by Country, Perceptions of Risk Impact**
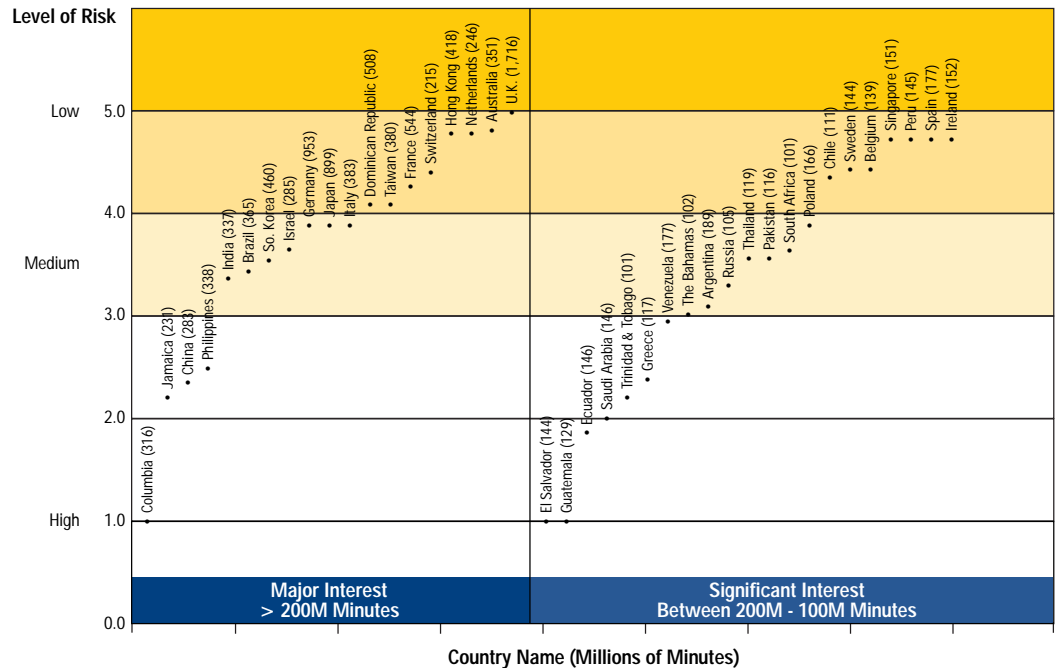
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In addition, the NRIC assessment attempted to correlate the impact of that on the economic health of each country it examined. The determination of "impact" took into account both a country's teledensity and population. Impact, as indicated in Figure 3, was also assessed as high, medium, and low.

* Minutes of use from 1995 Data (Source: ING Barings–Telecommunications Map of the World, 2nd Edition, September 1997)

Figure 4. Countries of Major and Significant Interest to the U.S. (as Determined by Intercontinental Traffic Patterns, Sorted by Perceived Risk)

Moreover, the NRIC assessment also examined countries according to traffic flows to and from the United States. See Figure 4. Traffic flows were arranged in two groupings: "major interest" and "significant interest." The "major interest" designation denoted those countries having more than 200 million minutes of intercontinental telecommunications (mMitt) traffic to and from the United States. The "significant interest" designation denoted those countries with traffic flows to and from the United States in the range of 100-200 mMitt.

Assessment

NRIC assigned numeric values for the three levels of risk. Based on a 0-to-5 scale, NRIC rated scores between 0.0-to-3.0 as high risk; 3.1 to 4.0 as medium risk; and 4.1 to 5.0 as low risk.

The valuations are more precisely labeled according to the following score ranges:

< 3.0 = High Risk; based on uncertainty

3.0 - 3.2 = Medium-High Risk

3.3 - 3.8 = Medium Risk

3.9 - 4.1 = Medium-Low Risk

4.2 - 4.7 = Low Risk

5.0 - 4.8 = Very Low Risk

NRIC reported that a country identified as "high risk," was labeled by NRIC as such because there was no information available about that country's telecommunications network or, alternatively, because of a self-admission of failure.

Low and Medium Risk Countries Include:	Medium and Medium High Countries Include:	High Risk Countries Include:
United States (5.0)	Russia (<3.5)	Yugoslavia (<2.5)
Australia (<5.0)	Mexico (<3.0)	Uruguay (<2.5)
Canada (<5.0)		Romania (<2.5)
United Kingdom (5.0)		Colombia (1.0)
France (<4.25)		Bangladesh (1.0)
Germany (<4.0)		Afghanistan (1.0)
Italy (<4.0)		
Japan (<4.0)		

The above list of contries is not exhaustive, but rather representational.

A country identified as "medium risk" was perceived to have a telecommunications network that would be Y2K ready in December 1999, though in advance of the millennial rollover. There was less confidence overall that the network will be able to provide the same level of reliable and continuous service on January 1, 2000, as before.

Finally, a country identified as "low risk" was perceived, based on data and information collected from the six independent sources discussed immediately above, to have a telecommunications network that would be Y2K-ready by June 1999. Accordingly, the evidence conveyed a relatively high level of confidence that the country's telecommunications network will be operational on January 1, 2000. However, NRIC indicated that most of its information is based on anecdotal evidence and perceptions of risk.

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ITU SURVEY ASSESSMENT — RESULTS AND ANALYSIS

Methodology

The ITU distributed a separate survey, entitled "The ITU Year 2000 Millennium Compliance Questionnaire," to its members, which include both national governments and telecommunications, satellite and mobile operators, on May 26, 1998. Unlike the NRIC study, the ITU survey involves self-certification by its members rather than an ITU evaluation.

The questionnaire asked respondents to provide: 1) dates by which they expect their operations to be Y2K-compliant; and 2) dates by which they plan to test Y2K compliance. The ITU will continue to update the survey as responses are received, and will continue to redouble its efforts by circulating subsequent questionnaires on an ongoing basis in order to get a better response rate from governments and operators. (The Commission has sent letters to all U.S. international telecommunications and satellite operators that are members of the ITU urging them to complete the ITU Year 2000 questionnaire.)

As of March 1, 1999, more than 300 governments and operators had submitted responses. Approximately, 13 U.S. international wireline carriers have responded. Table 1 summarizes these results.

GROUPING	Responses Providing an Anticipated Date for Compliance or Testing	Respondents Anticipated Y2K Compliance by 3/1/99	Respondents Anticipating Y2K Compliance after 3/1/99	Countries Represented in Responses	Countries Failing to Provide Dates for Compliance or Testing	Respondents Failing to Provide Dates for Compliance	Respondents Failing to Provide Dates as % of all Responses from Region
Africa	27	9	17	24	8	12	30
Americas	91	55	35	29	0	4	4
Asia & Australia	67	37	29	31	8	13	16
E. Europe & N. Asia	9	5	4	6	0	0	0
W. Europe	85	39	42	26	1	15	16
Mobile	16	8	7	n/a	n/a	1	6
Satellite	9	5	4	n/a	n/a	1	10
TOTAL	304	158	138	116	18	46	13

Table 1. Responses to ITU Survey. A response from either a governmental agency or an operator based in that country suffices to provide data for a given country.

Discussion

It is important to note that a large percentage of fixed access lines in the world are concentrated in only a few countries. Specifically, the United States, Japan, China, Germany, France, and the United Kingdom account for 53 percent of the aggregate total. The ITU's regional breakdowns on Table 1 may not be readily self evident because it groups countries as geographically diverse as New Zealand and Saudi Arabia into a single region, "Asia & Australia," while lacking a specific category for the Middle East.

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The ITU questionnaire shows that the countries with the most difficulties addressing their Y2K problems are predominantly developing countries from the African continent, South Asia, and Southeast Asia, though there are notable exceptions such as Colombia, Romania, and Guatemala. Eastern Europe, the Middle East, and Central and South American countries ranked themselves as relatively more prepared for the Y2K problem, while Western Europe, the United States, the Caribbean, and Pacific Rim countries have appear to have made the most progress preparing for the millennial transition. The ITU information can be found at the ITU website (www.itu.int/y2k/).

In comparing the NRIC and ITU assessments, both identify developing countries as lagging in reaching Y2K compliance, while countries dominant in fixed wireline access and international telecommunications traffic exchange are characterized as better prepared for Y2K.

There are few disparities between the two studies. Unlike the NRIC study, the ITU survey involves self-validation by its individual members rather than evaluation by the ITU. In the ITU assessment, countries are categorized according to their own assessment of readiness whereas in the NRIC report countries are ranked according to risk by NRIC, itself. Because the ITU survey participants provided the information voluntarily, its accuracy may vary considerably from country to country. On the other hand, as an intergovernmental organization, the ITU, has extensive breadth and credibility to reach telecommunications operators around the world and is likely to be consistent and representative in its data collection efforts of its members.

Other International Activities

The Commission recognizes the direct involvement and leadership of the ITU in connection with global efforts to mitigate the effects of Y2K problem. The ITU Year 2000 Task Force is headed by British Telecom representative, Ron Balls, and has heightened international awareness and provided direction on the global Y2K problem. A primary objective of the task force is to help develop outreach and advocacy strategies and methods for assessing and monitoring readiness for the ITU, as well as the foreign governments and foreign correspondents which comprise its membership.

The ITU, through its Year 2000 Inter-Carrier Testing Sub-group, is conducting testing, and has developed additional plans for regional testing worldwide. One test in early September 1998 among Germany, Sweden, and Hong Kong, uncovered only a few Year 2000-related problems. However, each of these systems had undergone extensive remediation and testing. The ITU has facilitated the sharing of information and best practices for inter-carrier testing upon the conclusion of each regional test. The organization has also facilitated operator-to-operator testing, and published various test scenarios, plans and test results.

The organization has agreed to a process model and set time schedules for agreement of the overall strategy and documentation of testing guidelines, best practice and report specifications. The number of operators involved in this group has increased considerably. The group has progressed to a global focus with involvement from Asia, Africa, the Middle East and North America. The main operators involved are AT&T, Bell Atlantic, British Telecom, Cable & Wireless, Deutsche Telekom, Etilsata, GTE, Inmarsat, Intelsat, Korea Telecom, MCI/WorldCom, Sonera, Sprint, Swisscom, Telekom South Africa, Telenor, Telstra, and Unisource.

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Moreover, the ITU has conducted several workshops to assist specific countries on their Year 2000 problems. From April-December 1998, seven workshops were held in various regions around the globe with telecommunications operators. The ITU plans to hold workshops in Moscow, India, and Asia in 1999.

In support of the ITU Year 2000 Task Force, the Commission participates in various ITU meetings where the topics of information exchange, international interoperability testing and contingency planning are discussed. Moreover, at the ITU Plenipotentiary Conference in Minneapolis, Minnesota, in November 1998, the Commission participated in efforts that resulted in the adoption of a resolution for increased Y2K awareness and better government-industry coordination.

Conclusions and Remaining Concerns

Although the United States and many other countries are well along in their efforts to meet the Y2K challenge, the Commission is particularly concerned that some international telecommunications carriers, especially those in developing countries, are ill equipped to address the seriousness of the problem and have not yet taken the necessary steps to prevent system failures. The Commission's concern stems from lingering questions about whether some international telecommunications carriers have the resources-including capital, technical and personnel expertise-to adequately address the Y2K problem. The Commission is also concerned that the current international economic slowdown in various parts of the world may limit the ability of foreign carriers to address the Y2K problem. In addition, we note that some European carriers have previously expressed difficulty in having to re-condition advanced electronic systems for both the Euro conversion and Y2K problems.

Various international users that are dependent on telecommunications networks have also indicated to the Commission that they are especially concerned about the need for greater disclosure by foreign carriers on how they are addressing the Y2K problem so that users can then determine how to design their contingency plans in foreign countries. In addition, users have serious concerns about certain countries that impose regulatory restraints that prevent them from accessing alternative networks to route traffic should a non-Y2K ready foreign correspondent's network fail to operate, and thus jeopardize a user's business. The full involvement of the United States' foreign partners can facilitate removal of regulatory restrictions that limit users of telecommunications networks from obtaining access to alternative networks and services to avoid Y2K disruptions.

Consumer Tips

- For any important international phone calls you plan to make on January 1, 2000, you may want to make the call in advance of that date, just to be prudent.

- If you face busy signals when placing an international phone call on January 1, 2000 it may merely be the result of unusually high traffic anticipated over that holiday period. Wait several minutes before re-attempting the call.

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